

What is claimed is:

1. An automatic level-control floating apparatus comprising:
 - a fixed casing resting on the water bottom or supported by a support set on the water bottom;
 - the fixed casing having a top open to the atmosphere;
 - the fixed casing filled with liquid;
 - a piston body floating on the liquid in the fixed casing in such a manner that the piston body can move vertically;
 - a floating tank integral with and positioned outside the piston body;
 - the floating tank floating on the water;
 - the floating tank having a top open to the atmosphere;
 - the floating tank filled with liquid;
 - a floating body for supporting the bottom of a superstructure above the water;
 - the floating body floating on the liquid in the floating tank in such a manner that the floating body can move vertically; and
 - a communicating line connecting the interior of the floating tank and the interior of the fixed casing so that the liquid can flow between the tank and the casing;
 - wherein the level of the floating body can be controlled automatically.
2. An automatic level-control floating apparatus according to Claim 1, wherein the communicating line is formed out of flexible and elastic material.
3. An automatic level-control floating apparatus according to Claim 1 or 2, wherein the ratio of the cross-sectional area of the piston body to the cross-sectional area of the interior of the floating tank is about 1.
4. A structure comprising:

a plurality of automatic level-control floating apparatuses according to any one of Claims 1 - 3;

the floating apparatuses spaced from each other;

a superstructure positioned over the floating apparatuses; and

connectors each interposed between the superstructure and the floating body of one of the floating apparatuses;

the connectors each allowing the superstructure and the associated floating body to be displaced relative to each other.

5. An automatic level-control floating apparatus according to any one of Claims 1 - 4, wherein the superstructure is a pontoon bridge.

6. An automatic level-control floating apparatus comprising:

a support set on the water bottom;

an annular fixed casing supported by the support;

the fixed casing having a top open to the atmosphere;

the fixed casing filled with liquid;

an annular piston body floating on the liquid in the fixed casing in such a manner that the piston body can move vertically;

a floating tank integral with and positioned within the piston body;

the floating tank floating on the water;

the floating tank having a top open to the atmosphere;

the floating tank filled with liquid;

a floating body for supporting the bottom of a superstructure above the water;

the floating body floating on the liquid in the floating tank in such a manner that the floating body can move vertically; and

a communicating line connecting the interior of the floating tank and the interior of the fixed casing so that the liquid can flow between the tank and the casing;

wherein the level of the floating body can be controlled automatically.

7. An automatic level-control floating apparatus according to Claims 6, wherein the superstructure is a floating floor.

8. An automatic level-control floating apparatus according to Claims 6, wherein the support comprises a tension anchor including:

an anchor fixed to the water bottom; and

a chain or a wire rope connecting the anchor and the fixed casing.